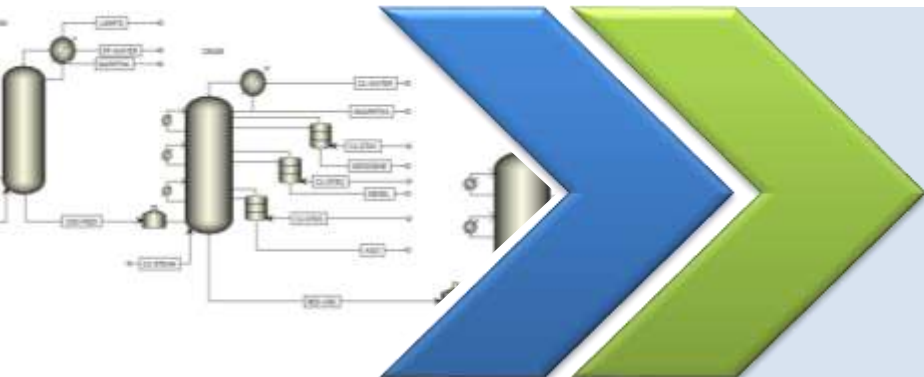




CHEMICAL REACTORS

DETERMINING KINETIC PARAMETERS FOR THE WATER-GAS SHIFT REACTION

CARBON DIOXIDE
 CO_2

+

HYDROGEN
 H_2

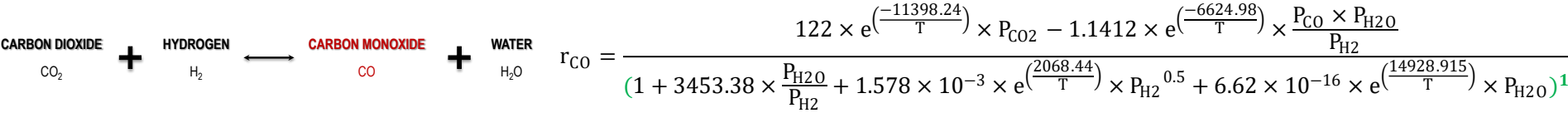
$\longleftrightarrow$

CARBON MONOXIDE
 CO

Undesired

+

WATER
 H_2O



KINETIC FACTORS :

k = 1
E = 0

(kinetic factor) x (driving force expression)

Rate = _____

(adsorption term)

ADSORPTION TERM (CONCENTRATION EXPONENTS): n = 1

Component	Term #1	Term #2	Term #3	Term #4
CO ₂	0	0	0	0
H ₂	0	-1	0.5	0
H ₂ O	0	1	0	1
CO	0	0	0	0

DRIVING FORCE (EXPONENTS & COEFFICIENT CONSTANTS):

- term #1

A = 4.804 / B = -11398.2 / C = 0 / D = 0
- term #1

Exponent CO₂ = 1 / H₂ = 0 / H₂O = 0 / CO = 0
- term #2

A = 0.13208 / B = -6624.98 / C = 0 / D = 0
- term #2

Exponent CO₂ = 0 / H₂ = -1 / H₂O = 1 / CO = 1

ADSORPTION TERM (COEFFICIENT CONSTANTS):

- term #4

A = -34.915 / B = 14928.915 / C = 0 / D = 0
- term #3

A = -6.451 / B = 2068.44 / C = D = 0
- term #2

A = 8.147 / B = C = D = 0
- term #1

A = B = C = D = 0